Taking a Pulse on SCR and SNCR Technologies

Environmental Controls Conference

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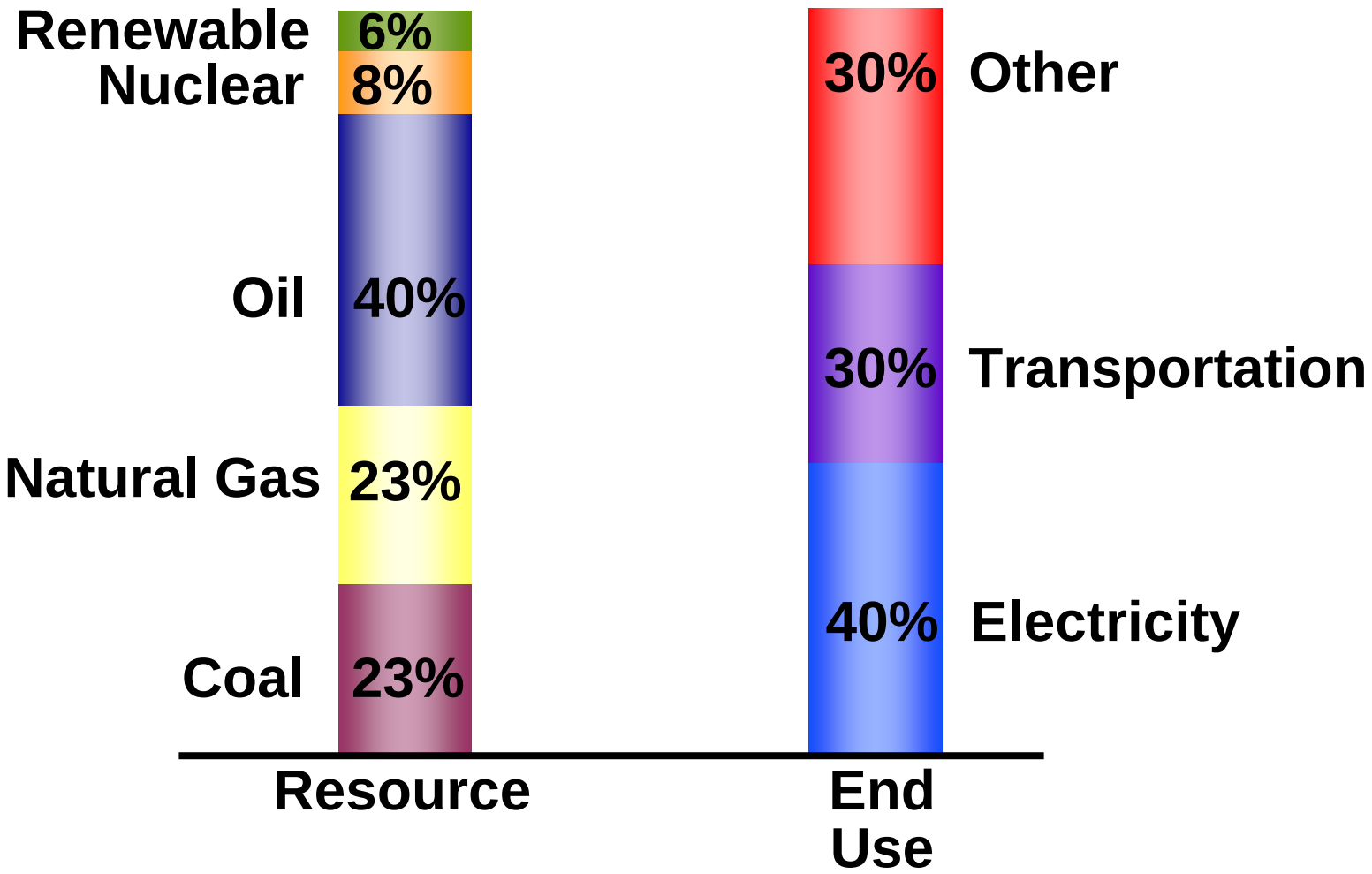
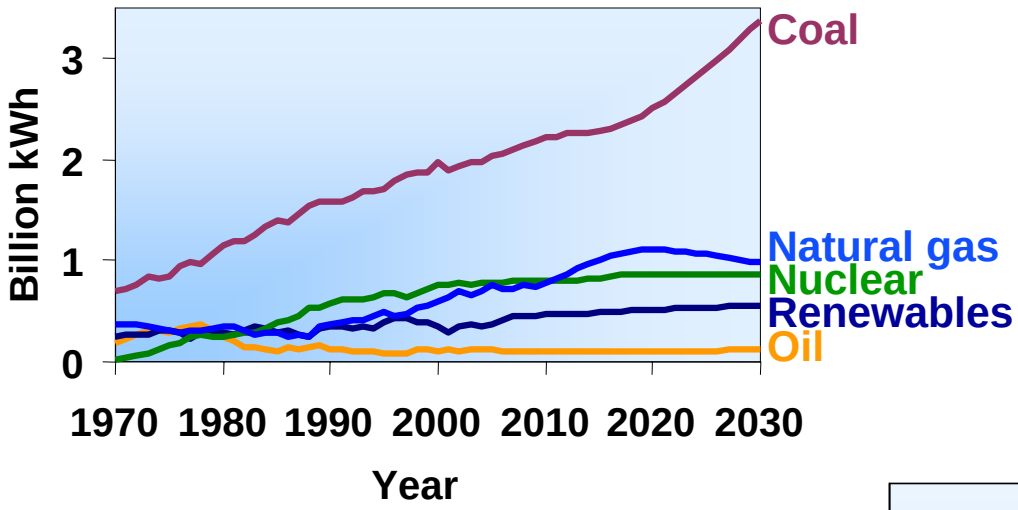
Office of Fossil Energy

U.S. Energy Today



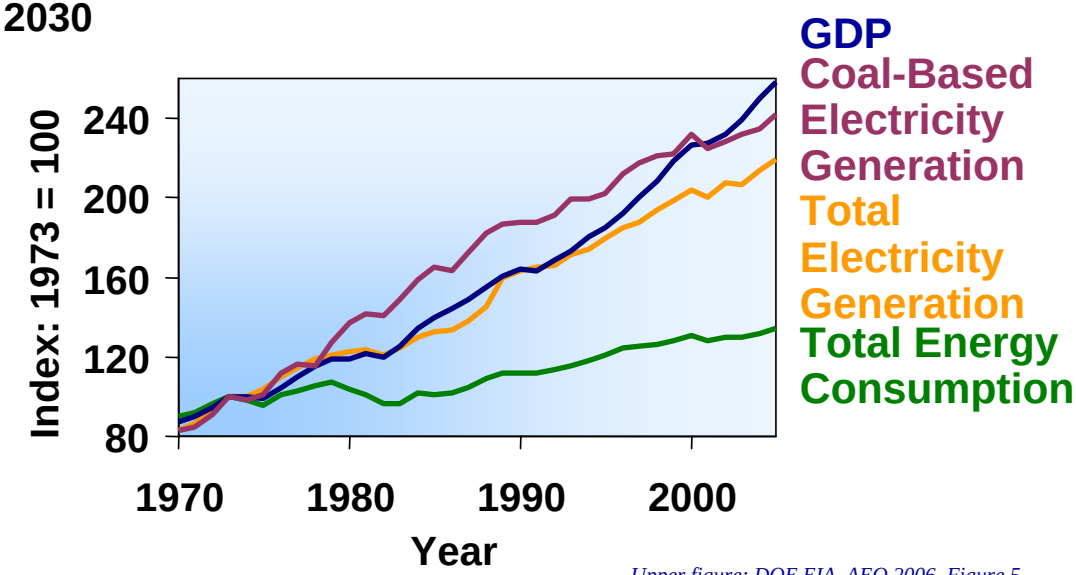
2004 Data, DOE/EIA 2006

U.S. Coal Utilization Outlook



Coal dominates electricity generation

Coal use linked to economic growth

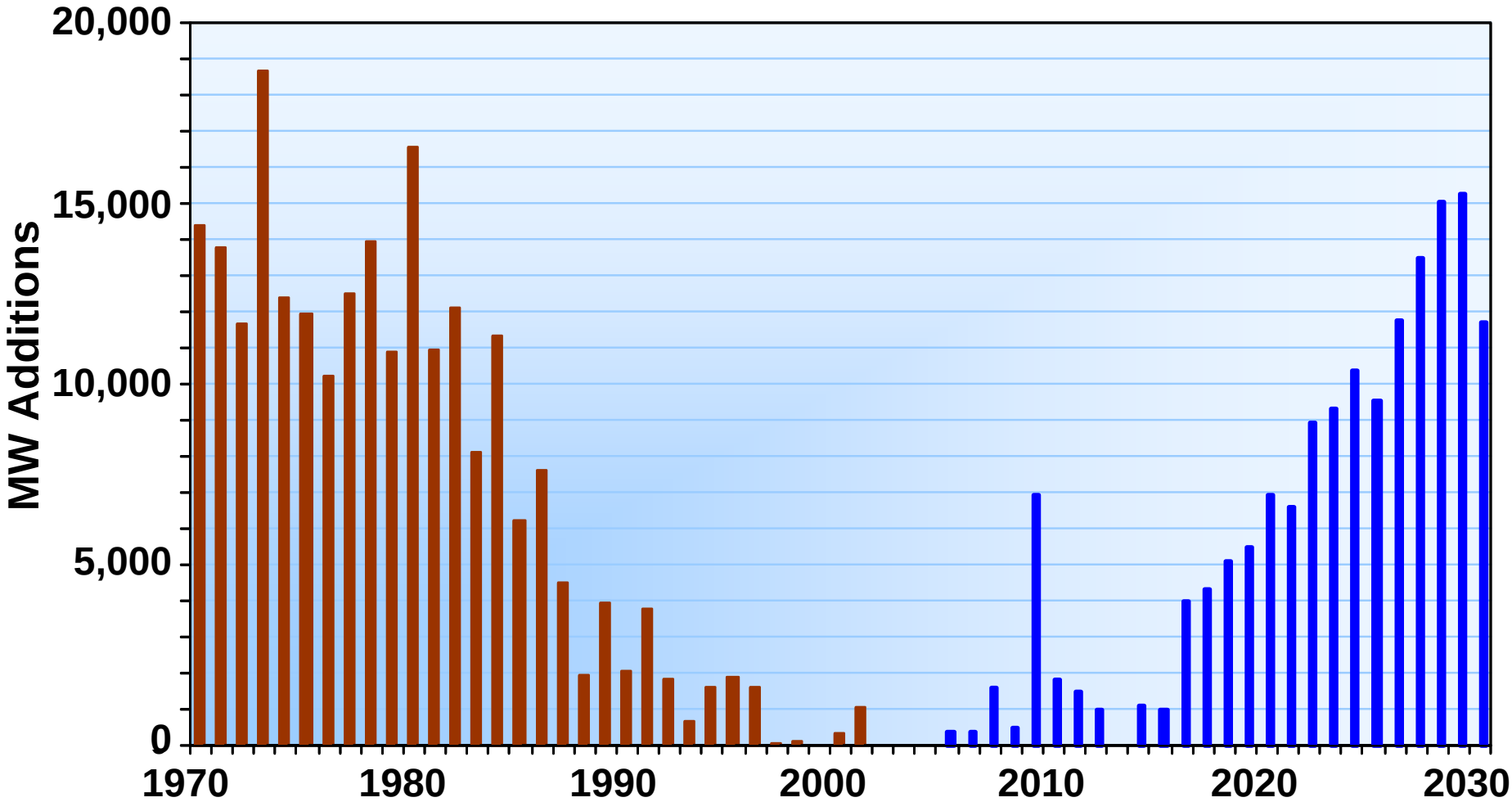


Upper figure: DOE EIA, AEO 2006, Figure 5
Lower figure: Energy & Electricity per DOE EIA, AER 2004
GDP per U.S. DOC, Bureau of Economic Analysis

Clean Coal Successes

- **Advanced SO_2 scrubbers**
  - Bailly, Yates, and Cayuga
- **NO_x-control technologies**
  - Low-NO_x burners, over-fire air, reburning, SCR, and SNCR
- **Hazardous air pollutants data**
  - Focus on Hg
- **Fluidized bed combustion**
  - Fuel flexibility; can handle even waste coal
  - Nucla, Tidd (PFBC), and Jacksonville
- **IGCC**
  - Wabash River and Tampa

Coal Adds 154 GW New Capacity

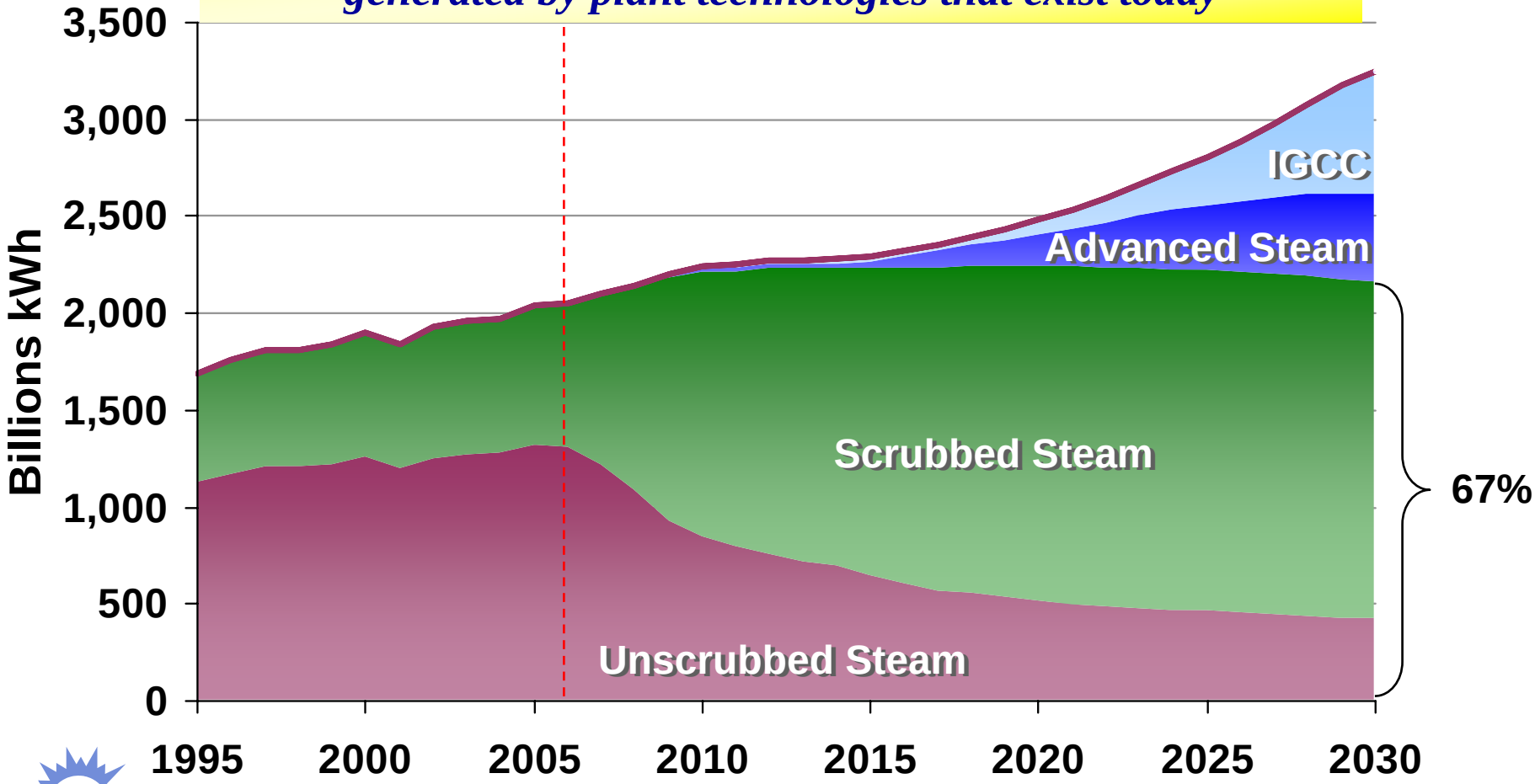


EIA, Annual Energy Review 2004, Annual Energy Outlook 2006

Kilowatt Hours from Coal Capacity

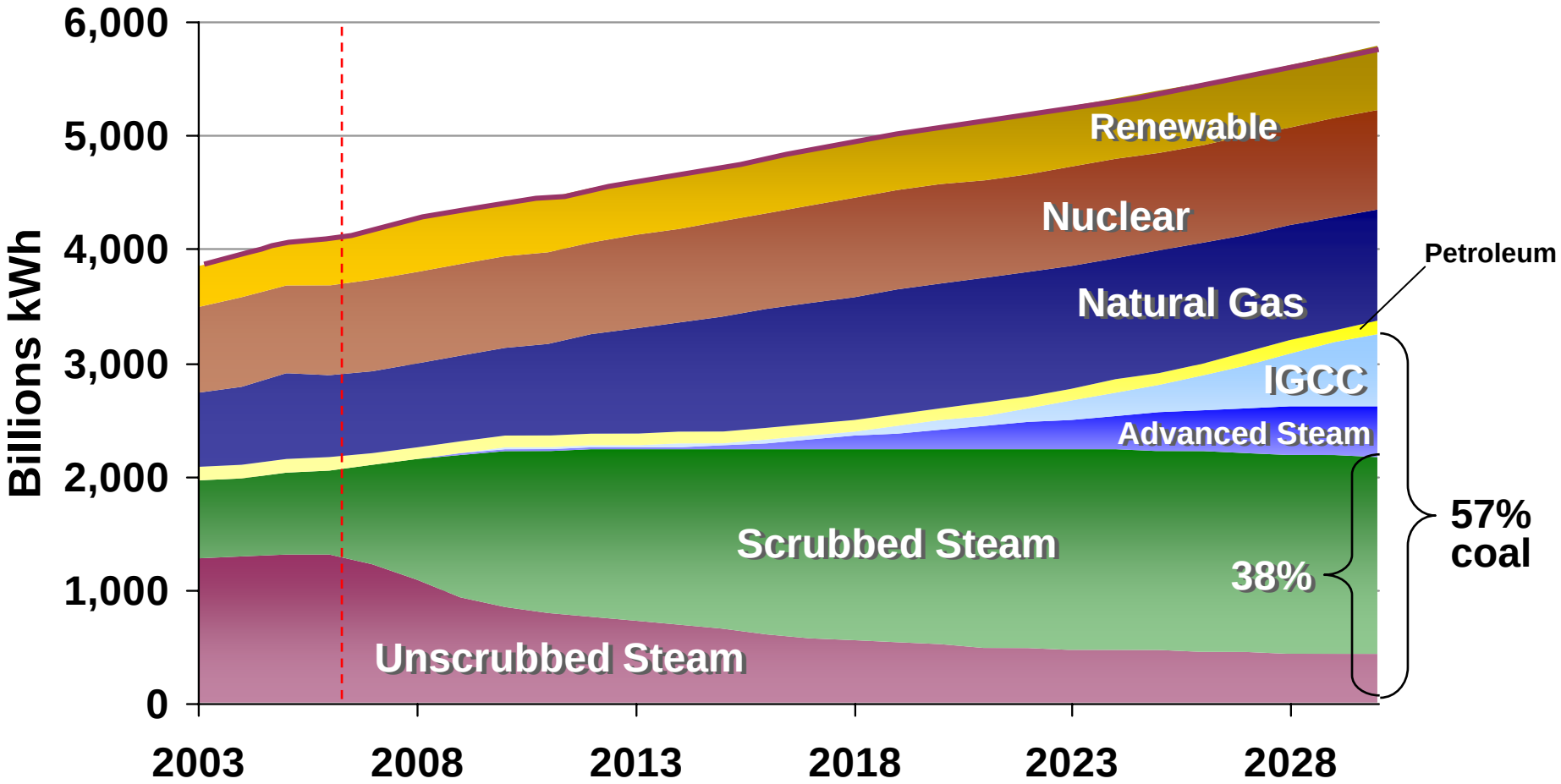
Forecast '06

The majority of total coal-fired kWh will continue to be generated by plant technologies that exist today

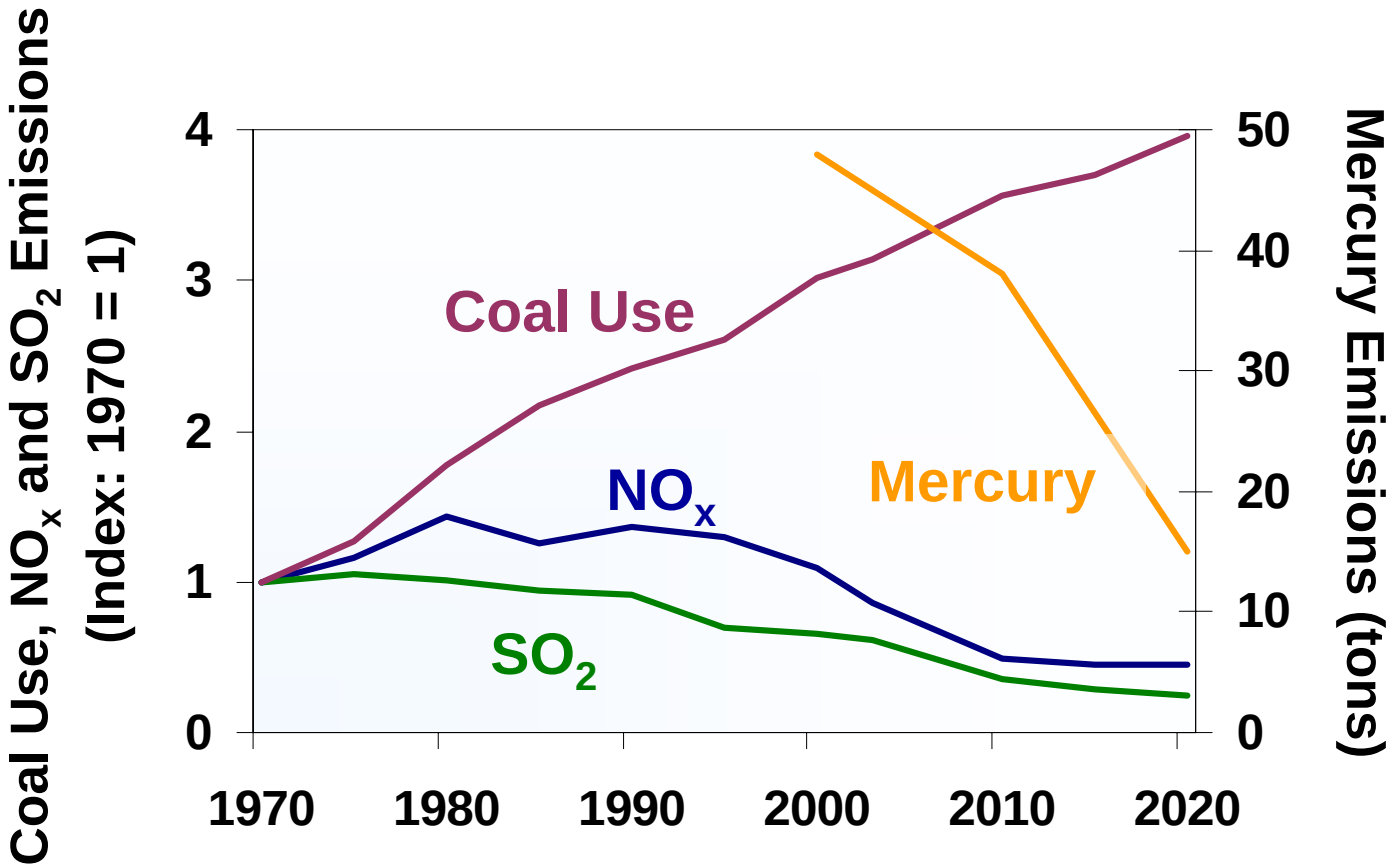


Annual Energy Outlook 2006, reference case

Kilowatt Hours from All Fuels
Forecast '06



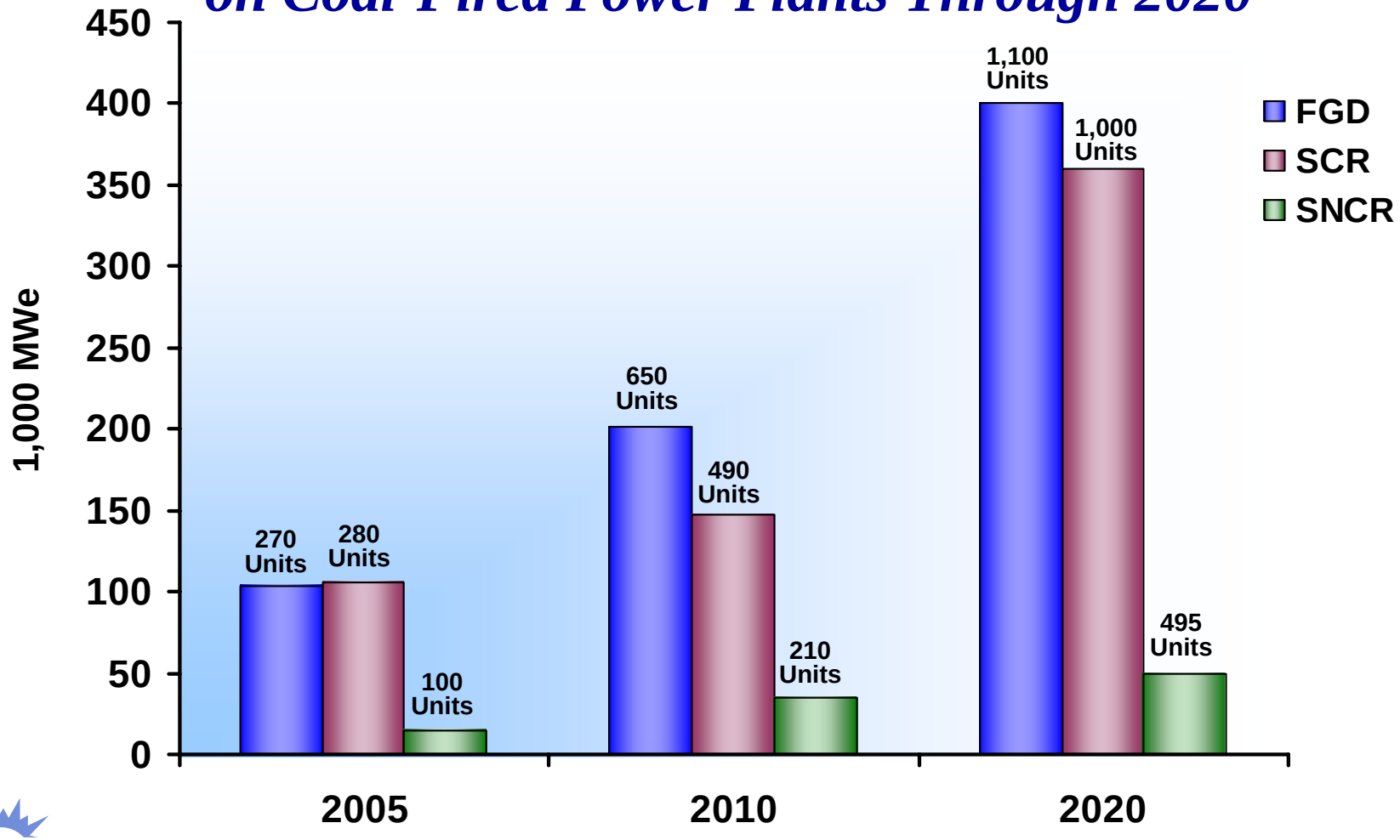
Emission Trends and Projections Relating to Coal Use



Historical data (1970–2000): Coal consumption and electricity generation per DOE EIA, AER 2003
NO_x and SO_2 per EPA Air Trends Report: http://www.epa.gov/air/airtrenda/econ-emissions.html
Projected data (2003–2020): Coal consumption and electricity generation per DOE EIA, AEO 2005
NO_x and SO_2 per EPA projections under CAIR: http://www.epa.gov/interstateairquality/charts.html
Mercury per EPA Clean Air Mercury Rule

Projected Opportunity

Cumulative Projected U.S. Pollution-Control Installations on Coal-Fired Power Plants Through 2020



Data courtesy of the McIlvaine Company

Issues

- Actual system costs, NO_x allowance trading, and regulatory requirements
- SCR catalyst killers
- Catalyst management techniques
- Ammonia slip
- Relationship between mercury and SCR systems
- The oxidation of SO_2 to SO_3 by SCR catalysts
- Layering
- Labor pool

NETL Locations

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